

- 17 -

CLAIMS:

1. A method to operate a hearing device comprising an input
5 transducer, a signal processing unit and an output
transducer, the method comprising the steps of

- converting an acoustic input signal into a converted
input signal,
- processing the converted input signal in a main signal
10 path in order to obtain a main output signal,
- supplying the main output signal to an output
transducer,
- processing the converted input signal in a side signal
path to obtain a side path output signal, and
- 15 - superimposing the side path output signal on the main
output signal,

wherein a group delay of a signal traveling through the
side signal path is smaller than a group delay of a signal
traveling through the main signal path.

20 2. The method of claim 1, further comprising the step of
adjusting a gain in the side signal path such that an
overall gain from the input transducer through the side
signal path to the output transducer is approximately equal
25 to one.

3. The method of claim 1, further comprising the step of
adjusting a gain, applied to the converted input signal in

- 18 -

the side signal path, as a function of a gain applied to the converted input signal in the main signal path.

4. The method of claim 3, wherein the gain applied to the converted input signal in the side signal path is calculated from several or all existing band gains applied in different frequency bands in the main signal path.
5. The method of claim 1, further comprising the step of filtering the signal in the side signal path, preferably by a high-pass filter or a time-domain filter bank.
6. The method of claim 1, further comprising the step of limiting the main output signal before the output transducer.
7. The method of claim 1, further comprising the steps of
- processing the converted input signal in at least one further side signal path to generate at least one further side path output signal, and
 - superimposing the at least one further side path output signal on the main output signal.
8. The method of claim 7, further comprising the step of
- filtering an input signal in at least one of the further side signal paths.
9. The method of claim 1 or 7, further comprising the steps of
- monitoring a level of the converted input signal,

- 19 -

- switching off the processing of the converted input signal in the main signal path in case the level of the converted input signal is below a preset value.

- 5 10. A method to operate a hearing device comprising an input transducer, a signal processing unit and an output transducer, the method comprising the steps of
- converting an acoustic input signal into a converted input signal,
 - 10 - processing the converted input signal in a main signal path in order to obtain a main output signal,
 - supplying the main output signal to an output transducer,
 - processing the converted input signal in a side signal path to obtain a side path output signal,
 - 15 - superimposing the side path output signal on the main output signal,
 - monitoring a level of the converted input signal, and
 - switching off the processing of the converted input
 - 20 signal in the main signal path in case the level of the converted input signal is below a preset value.

11. A hearing device comprising a main signal path comprising

- 25
- at least one input transducer to convert an acoustic input signal into a converted input signal,
 - a signal processing unit and
 - an output transducer,

- 20 -

wherein the at least one input transducer is operatively connected to the output transducer via the signal processing unit,

5 wherein a side signal path is provided that is, on its input side, fed by the converted input signal and that is, on its output side, operatively connected to an adder unit which is further comprised in the main signal path in between the signal processing unit and the output transducer, said side signal path comprising a gain unit.

10

12. The hearing device of claim 11, wherein the side signal path further comprises a filter unit, preferably of the type high-pass filter or a time-domain filter bank.

15 13. The hearing device of claim 11, wherein the main signal path further comprises a limiting unit that is arranged in between the adder unit and the output transducer.

14. The hearing device of claim 11, wherein the gain unit
20 is operatively connected to the signal processing unit.

15. The hearing device of claim 14, wherein a value for a gain, set in the gain unit, is adjustable as a function of a gain of the main signal path.

25

16. The hearing device of claim 11, wherein further side signal paths are provided, each comprising a further gain unit and a delay unit, whereas the converted input signal is fed to the delay unit via the further gain unit, the

- 21 -

output of the delay unit being operatively connected to the adder unit, if need be via further adder units.

17. The hearing device of claim 16, wherein at least one of
5 the further side signal path comprises a further filter unit in between the adder unit and the corresponding further gain unit.

18. The hearing device of claim 16, wherein at least one of
10 the further gain units is operatively connected to the signal processing unit.

19. The hearing device of claim 11 or 16, wherein a silence
15 detector unit is provided to which the converted input signal is fed and which is, on its output side, operationally connected to the signal processing unit.

20. A method for manufacturing a hearing device comprising
20 an input transducer, a signal processing unit and an output transducer, in which hearing device

- an acoustic input signal is converted into a converted input signal,
- the converted input signal is processed in a main signal path in order to obtain a main output signal, and
- 25 - the main output signal is supplied to an output transducer,
- the converted input signal is processed in a side signal path to obtain a side path output signal,

- 22 -

- the side path output signal is superimposed on the main output signal,
- wherein a group delay of a signal traveling through the side signal path is smaller than a group delay of a signal
- 5 traveling through the main signal path.